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ABSTRACT

Provided is the transcript of Part II of a five-part series on gifted children in the schools, presented by Options in Education -- a weekly radio broadcast devoted to coverage of news, features, policy, and people in the field of education on National Public Radio. The program focuses on the topic "Can You Really Tell a Gifted Child When You Meet One?" and includes a discussion of characteristics of the gifted child by C. Johnson Participants listed include a pianist and a poet, and such educators and experts as J. Renzulli (on methods of identifying the gifted child and adult), S. Novotny (on the gifted child in rural areas), M. Meeker (on the structure of intelligence), and A. Baldwin and C. Jordan (on identifying the disadvantaged gifted child). (IM)

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INSTITUTE FOR EDUCATIONAL LEADERSHIP
THE GEORGE WASHINGTON UNIVERSITY

PROGRAM #28

TRANSCRIPT FOR

"GIFTED CHILDREN IN THE SCHOOLS'

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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## "Can You Really Tell A Gifted Child When You Meet One?"

Second in a Series of Five Programs

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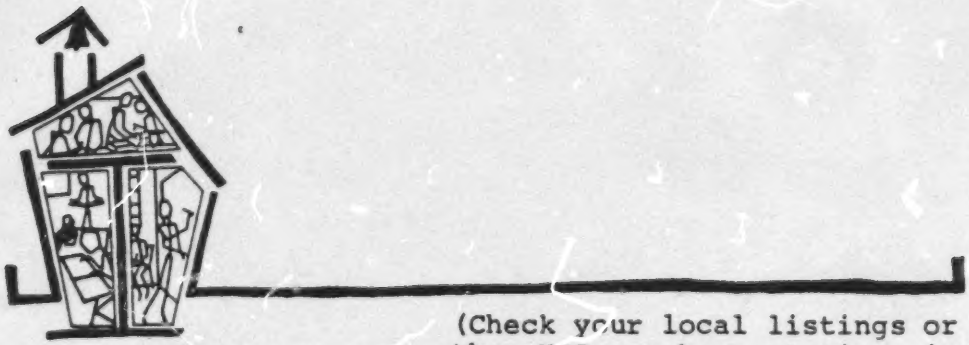

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(OPENING MUSICAL THEME)

BLAIR: I'm Wendy Blair with NPR's OPTIONS IN EDUCATION.

OPTIONS IN EDUCATION is a news magazine about all the issues and developments in education -- from the ABC's of primary education to the alphabet soup of government programs. If you've ever been to school, we have something that will interest you.

MERROW: This is John Merrow. On this edition of OPTIONS IN EDUCATION we continue our look at education and the gifted child. This week: "Can you really tell a gifted child when you meet one?"

STUDENT: Well, I live in Chicago and I'm in a very big high school with 4,000 kids and just to be noticed at all you've got to do something that's kind of special. And you can either get into the kind of attention that's not too favorable or you can get into some kind of thing like this.

I remember when I entered high school I just began kind of goofing around with experiments and books and things. And when I entered, I decided I was going to become real famous at school, and after the desire for attention kind of left, I got more and more interested in the science itself.

STUDENT: When you find an idea for some sort of research, you can really get into it. It becomes part of you, and I think that in itself is enough inspiration to keep going.

BLAIR: Those two young women are high school science prodigies who recently presented their own research at a science fair in Boston. They show an enthusiasm, a love of learning, and a yearning for recognition that would seem to make it easy for anyone to tell that they are gifted.

MERROW: But it's not that easy. In fact, some gifted children are not model students at all. They might even seem backward or be severe disciplinary problems for their teachers. Giftedness is not identified without effort. Schools can't just single out the students who are hard working, enthusiastic, or well behaved. Giftedness is usually defined by an I.Q. score of 130 or higher, but that sometimes causes problems, as we shall see.

BLAIR: Last week we talked about whether gifted children should be singled out for special treatment. One side said No, because "cream rises to the top" and therefore those children can and will achieve without special help.

MERROW: Those working in gifted and talented education disagree. They say that the unidentified and unaided gifted child will become bored and frustrated in the classroom. Further, they say, special children must be identified early, or their special abilities may be lost to society along with the things they might have achieved for us all.

BLAIR: This week we're looking at the different ways of identifying a gifted child. The best individualized I.Q. tests cost $75.00 per child - too expensive for most school districts - so, many depend on group testing, which is cheaper but far less accurate. In fact,

group testing may be no more accurate than nomination by teachers. And, sad to say, when teachers are asked to identify their gifted students, they are wrong half the time. Some educators say right now that only one gifted child in twenty is ever identified.

MERROW: There are many tests and methods, and almost as many arguments about which works best. The easiest way would seem to be direct classroom observation, but unfortunately, intelligence and talent, like beauty, are often in the eye of the beholder. Mark Poindexter, of Station KCUR in Kansas City, has some thoughts on that subject.

POINDEXTER: Ask yourself this question -- Are these qualities to be admired -- self respect -- righteous indignation -- and a strong desire to right a wrong -- admiration in others and a desire to emulate -- strong attraction to the opposite sex -- appreciation of good food and a hearty appetite -- ambition and enterprise -- patience and relaxation? Expressed that way, most of those qualities may sound pretty desirable, but those same traits are also known as the seven deadly sins -- pride, wrath, envy, lust, gluttony, avarice, and sloth.

So, when we're talking about children, a boy or a girl who is seen as active and curious by one person, might be called disruptive and nosy by another. Charmaine Johnson, a teacher of the gifted in the Shawnee Mission School District, describes what traits she believes distinguish gifted children from their classmates:

JOHNSON: I think curiosity is perhaps one of the biggest things that shows up to the classroom teacher. He may not necessarily be a performing gifted child. Every paper will not be perfect. Every assignment will not be on time and be done. But he is usually the child who wants to know about strange things -- why did the Samarians write on clay instead of papyrus, or something of this sort, and will many times take the time to find out. He might be the child who goes ahead and does all the extra questions. He might be the child who's causing trouble in the classroom, because he's been bored.

POINDEXTER: Those may be some of the things the teacher may observe, but leaving designation of the gifted up to the teacher is something schools are hesitant to do. There's too great a chance that the teacher will let his or her own feelings about the child get in the way. An obnoxious child might be passed over, while a well-behaved conscientious pupil might win the teacher's designation as an exceptionally bright boy or girl. That's why where students are classed as gifted, the diagnosis involves input from several sources.

Proposals for identifying exceptionally bright children and providing them with help in working up to their potential go back a long way. More than 2,000 years ago, Plato wrote that a group of future leaders should be selected from among those children who are tenacious of memory and hard to deceive.

In 1890 a French lawyer, turned psychologist, by the name of Alfred Binet, began working on a means to measure the differences between bright and dull children. He tried a wide variety of methods, including measuring the size of the cranium and even palm reading. But these approaches didn't seem to lead anywhere. Then, in 1904, the French government decided that schools needed a method to differentiate between mentally defective pupils and those who were able to do their school work, but weren't applying themselves -- what we would call today under achievers. Binet and a physician were asked to develop some sort of test, and they came up with a test. And by giving it to a large number of children determined norms for different age groups. Pupils could then be given the test and their scores compared with the norm for their age.

Within a relatively short time, the Binet test came to America where it was revised at Stanford University by Lewis Terman. Terman changed the test to include what he felt were items appropriate to the U.S. population. And he introduced the I.Q., or Intelligence Quotient, as a means of expressing the results of the test. I.Q. is the ratio of mental age to chronological age.

For example, if a ten-year-old's test score is the same as the norm for his age group, his I.Q. is 100. If he scores consistent with the norm for 13-year-olds, his I.Q. is 130.

Terman spent a good part of his life studying differences in mental ability. During World War I, he devised the alpha and beta tests the Army gave to draftees to determine their mental capabilities. In 1921, Terman selected about 1,000 ten-year-olds with high I.Q.'s who were then attending California schools. Terman found, in contrast to what was then the popular belief, that the children in his study were not in any way less healthy, smaller, or less emotionally stable than the general population. In fact, he found that they tended to excel in physique and emotional stability, as well as intellect.

So, that mad-scientist-absent-minded-professor picture of the gifted appears to be a false one. And just as false seems to be the old adage that there's a thin line between high intellect and insanity. Another study of 113 artists and 181 scientists furnished no evidence of any correlation between insanity and intellect or creativity.

Terman's study also showed that the great majority of the children who had high I.Q.'s and were included in his sample came from higher socio-economic levels. Only 7 percent came from the lowest socio-economic group. Term n tended to believe that heredity played a large role in determining intelligence, but, of course, there may be more to it than that. One of the greatest objections to the I.Q. test is that they are culturally biased, because they've been standardized on middle-class groups.

In other words, the standards of those people who are relatively successful have become the norm. And this is why I.Q. tests are under fire and why they have been prohibited in some school systems.

BLAIR: Mark Poindexter, of Station KCUR in Kansas City, outlinining some of the basic methods for identifying the gifted and talented.

MERROW: Now, why not get a pencil and paper, because later in the program we're going to give you a little test of your own creative abilities.

(MUSIC -- PIANO)

## LILI KRAUS, PIANIST

LILI KRAUS: I think the answer is much simpler than the doing of this answer, but the answer is simply: Have faith, accept life, know in the heart of your heart what you believe to be right, and act accordingly.

MERROW: Pianist Lili Kraus speaks with the conviction of an artist dedicated to perfection, a quality which may well be characteristic of gifted people. Born in Budapest in 1908, Kraus achieved international recognition in the late 1930's. Art and politics collided when she was detained in the Dutch East Indies when the Japanese invaded in 1940. Although she was a prisoner there for three years, she was spared ill treatment because of her international reputation.

(MUSIC -- PIANO)

KRAUS: The arts, like always, also today, reflect the general tendency, color, trend of life. This is their very function.

(MUSIC)

KRAUS: We all get accustomed to things, no matter what things -- a language, a terminology, a pattern of life, a style of painting, a mode of speech. When I hear somebody say, "I don't dig that," it doesn't mean a thing to me, but I understand that it can mean something to the others.

When a great poet speaks, his words become life itself through the spirit and the feeling that went to express them.

(MUSIC)

KRAUS: If an artist is a true artist, he will understand that this is a holy obligation never to be betrayed.

MERROW: Pianist Lili Kraus, speaking with students in Missoula, Montana.

PROFESSOR JOSEPH RENZULLI OF THE UNIVERSITY OF CONNECTICUT

PROFESSOR JOSEPH RENZULLI: You have to start with the assumption that if there was no such thing as gifted in the adult world, then we wouldn't go looking for it in children.

BLAIR: Professor Joseph Renzulli is an Educational Psychologist at the University of Connecticut. He and his associates have developed a ten-part test to identify giftedness. He spoke with John at a recent meeting of the Council for Exceptional Children in Chicago.

RENZULLI: There are a number of sources of information that we can use to identify gifted kids. One source is the teacher, an obvious and very important source. Another source might be the child himself -- autobiographical stuff or performance stuff. That is, if we take a look at the actual work of the child -- these are essays that the child has written or these are scripts for plays that he's written or photographic essays that she has done, whatever it may be. Now, the problem there -- and by the way, I think that's the single most important way to identify gifted kids, but I also think it's the most difficult, because some judgment must be brought to bear on those products -- are they good products? I think any time a child brings something in -- I know anything my little three-year-old brings home from nursery school -- glops of paste and pipe cleaners stuck on a piece of poster paper, and we just ooh and ah and tell him how wonderful it is. And I think that's good. I think that little children need that kind of feedback, but as teachers, or identifiers of talent, we have to start to be able to know what is good, what is average, and what is superior or spectacular as far as performance goes.

It's really very interesting because the artist defies and eschews the use of psychometrics. They say -- I trust my judgment, I can tell you where there is good art and where there is artistic potential. And I think we can learn a lot from people who have been taught from a very early age to trust their own judgment.

Now, that's a second source of information and the child himself or herself; although it interacts with professional judgment, the third type might be pure nomination. Don LaSalle, Director of

Talcott Mountain Science Center, says the single best way of spotting high level scientific talent is to ask kids that are already in one or another of their gifted programs -- they run several there. And that there's a sort of community among scientists, regardless of age, about what is outstanding scientific talent, who's really turned on to science. And, so, that's again a source of information.

There's, then, the whole business of parent information, which is kind of a touchy issue really. When you start to search out parent information, I think you have to build in a number of safeguards, because I don't think it's fair to lead parents to believe that they have a gifted child and then you're going to have to tell many of those parents that their child is not gifted. So, I think it has to be done with a great deal of tact and caution. I question the value of it in relation to the problems it raises, but I believe many times that there are things that the child is into at home that for one reason or another the school is not likely to find out -- a very intensive interest, a long-term concentrated interest in something. Or, again, with young children parents are the only ones that would spot the signs of precocity; reading by the age of two and doing algebra by the age of four are kinds of precocity. Again, every source of information is not going to catch every child. That's why the folks in the gifted business are recommending a kind of multi-information processing approach.

I haven't mentioned the other source of information. And that, of course, is tests. We don't want to throw the baby out with the bath. Tests do spot a certain kind of ability -- that is the ability to do well in learning in school.

MERROW: Tests tell you how well you did on the test.

RENZULLI: Well, it's not quite that bad. I think that tests predict very well how a youngster will do in a school situation. You learn a lot about things, but as I'm fond of saying, it's difficult to fake good on an intelligence test, and there are kids that have plain old high intelligence. And I think that that must be looked at.

You have to start with the assumption that if there was no such thing as gifted in the adult world, then we wouldn't go looking for it in children. So, if you can buy that assumption for a moment, what the research on the gifted adult says is very simple really. There is a cluster of three characteristics that make the eminent or externally judged gifted adult. When I say externally judged, I mean that person has achieved or accomplished in their area. And one of those things -- and this is very interesting -- is above average, but not necessarily superior intelligence. It's very interesting, so that if we start to use tests, we ought to be looking from the above average and upward range. There is not a direct one-to-one relationship between growth on intelligence tests and eminence. So, that's one.

Another one -- and I think this is the key one -- this is the really important one. Many researchers have found this. It's a thing called task commitment. That's how I got my motivation scale. And task commitment simply means that the person has the ability, the capacity, to hang in with a difficult problem over a long period of time. And by the way, most of our gifted programs don't give children a chance to develop this ability, and that's my criticism of what has happened in a lot of gifted programs. It's the quick game that's played for two hours in the morning and that's the end of it.

But, anyway, the third one is a very unusual one, because it's one that no one would deny is there -- the third trait in this little

cluster, no one would deny it's there, and, yet, we can't measure it. That's creativity. I think that those characteristics in adults should be a guide for us to what we should be looking at in children. This is really why the whole multi-information processing approach is very important to me, because there's no single source of information that we can place absolute faith in.

MERROW: But what's the single best indicator?

RENZULLI: Look in their eyes. If they've got bright eyes, then -- there is no single best.

(MUSIC -- "YOU HAVE THE COOL, CLEAR LOOK")

BLAIR: Professor Joseph Renzulli, Educational Psychologist.

(MUSIC CONTINUED)

BLAIR: We already know that the look in the children's eyes doesn't tell us how smart or creative they really are. While educational psychologists and researchers like Joseph Renzulli look for more and better ways, the Stanford-Binet and the Wechsler I.Q. tests remain the standard ways of measuring intelligence. Later in this program we'll try to figure out just what intelligence is. Maybe the question shouldn't be "How much intelligence?" But, "What kind?"

MERROW: Identifying gifted children requires testing and observation. Apparently, multiple sources of information are necessary. Then, the next step is a program to nurture the gifts, maybe. Most school systems have patched up bits and pieces of programs, if they have programs at all. That makes us curious about your school district. Is there a program for the gifted? We'd like to hear about it, and we'll read your letters on the last program in this five-part series. We'll give you an address to write to at the end of the show.

BLAIR: One district with a patchwork program -- or a new one, anyway -- is Yuma County, Arizona. In that district, one consultant, Sue Novotny, serves 19 schools. She tells John what looking for gifted students in this rural area is like.

SUE NOVOTNY

SUE NOVOTNY: I feel like a pioneer in the sense that I'm the only one in Yuma County that is concerned with the gifted child, and it's a new kind of concept for the teachers and administrators out there. They know they have bright students, but what do you do with them? You know, you just keep them in the classroom, whereas I've been employed to come out there and work with this kind of learner.

MERROW: You've come from training programs that are in states that are relatively progressive -- from California, from Illinois, from Florida. It must have been a cultural shock unparallelled.

NOVOTNY: Exactly. I felt very much alone. I experienced things. I learned my limitations this year, and I thought I didn't have any. I thought I could do anything with that background, with that experience. And when I went to Yuma, I realized that I was all alone. It was difficult, because I really didn't have teacher support, because I was a threat to them. I came in and I have new innovative kinds of ideas and things. And I said, "Let me have your more able learner -- let me work with him for an hour every three weeks -- that's all I can spare right now." And they were threatened. They said, "Why do you want to take my best student out of my classroom -- I'm doing a good job -- we did it before you -- we can do it after."

No one wants to have their best student taken out of their class for any length of time. It poses somewhat of a threat, but then, some teachers are able to accept it. Every lesson I do with the students is put in the teachers' mailboxes so that the teacher has the option of doing it with her class too. The kinks are being worked out.

Arizona's a new state as far as gifted programs are concerned. Of course, around the areas like Phoenix and stuff, they are going. But places like Yuma, which is very rural, it's just beginning. And that's how I feel like I'm a pioneer.

Let me give you this example. I went to a very small school. There are four teachers at this school. The population of the school isn't over a hundred, and I tested a child on a Binet. And he came out 110, which is a good average score. It's a little bit above average. And after the testing situation, I always counsel the parent and the teacher if I can. Sometimes you have to go quite a distance to find the parent, or they don't understand what's going on. If you can get them to the school or you go out and see them, it's rugged. You travel across bumpy roads and you dodge sand storms and stuff. It's just very different.

You sit down in a counseling situation with the parents and the teacher of the child, and you interpret the scores. You say what this means. In a very rural school, "your child rates in 27 percent of all children his age." So, the teacher's confused automatically. She doesn't know how to interpret test scores and stuff. So, I show them items on the test and I tell them the implications. And, then, she goes, "Well, I really don't understand this." And so I tell them about standardization and say, "Well, this means that John is functioning in the upper 27 percent of all children his age -- this is kids in New York City -- this is kids in Seattle, Washington." And she goes, "Oh," and she's put back; she goes, "Well, I didn't know he'd be compared with kids across the nation -- I don't understand why we just don't compare them with the kids in our school."

Okay, if we compared him with the kids in his school, he would indeed be above average, but not what the state says is gifted. And we should provide for these students too. I really feel that we should, but we don't right now. There's a criteria. We have to go by that. There are differences. I'd like to have it spread down a little bit, so we could pick up these kids that are academically talented. They are cheating within their own environment, you know; they don't have to really compete with New York City kids.

MERROW: So, what you're saying is that there is a relativity factor here. The teacher looks at the smartest kid in his or her class and says, that kid must be gifted. And you're saying, that's not accurate.

NOVOTNY: Well, teachers' nominations we know are not accurate. They just aren't.

MERROW: They're about fifty percent wrong, right?

NOVOTNY: I don't know what the statistics are, but they are not always right. And it's just one thing to consider when you nominate a student for a program, but it's the first. It's the beginning. I couldn't possibly go into all these schools and say, "Okay, we'll test these kids." I don't have any experience with these children. I haven't heard them talk. I haven't watched them interact. I haven't seen any of the work they've done.

MERROW: And that's the best way?

NOVOTNY: Identification process is a long process. It involves a lot of hours. You just don't test a kid oftentimes. You inverview the child. You find out where he's coming from. You take into consideration all these other factors that sometimes are working against a child, like his environment, where if he doesn't have the interaction, if he's not able to sit down and talk to another child about estuaries. Okay, that's something we don't have in Arizona, but if he's not able to talk to somebody, he won't talk about it. The ideas won't come forth. He's like stifled. And any child is going to conform. He's not going to come up with any of that stuff if he's not getting any kind of response. So, they sort of conform. It's hard to identify some of these students because of that.

MERROW: How are gifted kids different from me, from the average kid?

NOVOTNY: Okay, have you ever been with a group of gifted students, identified gifted students?

MERROW: Tell me what it's like.

NOVOTNY: All right, first of all, if the atmosphere of trust has been established, it's very electric. These kids are thinking. Most of them are very verbal. They'll come forth with new ideas and kinds of things. They need the guidance, they need experts to work with them. It's an exhausting kind of an experience, because you listen to all these things that are happening, and then you try and do something with these things too. You try to channel a little bit, and you try to get everyone to respond. It's very exciting. That's why I'm in it. I really like it. It's a lot of fun.

MERROW: Are you gifted?

NOVOTNY: I was identified gifted when I was in elementary school, and I was in a unique situation. I went to a special school once a week, which was a turn-on for me in my elementary school career. Because I had some teachers that had high expectations, but they didn't actually do anything. Whereas at the center, we did a lot of things.

MERROW: How were you identified as gifted? Was it simply an I.Q. score?

NOVOTNY: Yes, it was an I.Q. score. That's how I was identified as gifted. I'm not really sure -- this was in the third grade -- I imagine my teacher nominated me. And then I was tested. Usually, you go on teacher nominations first and sometimes parental nominations. You have to have somebody that says, "I've got a learner here, I've got a child that asks me strange questions."

You know, they definitely involve a higher thought process. I'm not always able to answer them. Maybe they're just weird, or maybe they're things that I've never thought of before myself. So, we test them. That's one of the best measures we have is an individual intelligence test, and that's what many of the states go on as saying, okay, this is what gifted is.

MERROW: What about the stereotypes of gifted kids? They're antisocial, they're weird, they're uncoordinated, or they have a defect that somehow compensates for this special talent -- all those kinds of things.

NOVOTNY: What about it? To me that seems absurd now, simply because of my background and training. I know some gifted students that are

amazing students. If you look at them and be around them -- you have to be around them and experience that person -- they're indeed gifted, and they don't fit the stereotype. I never had that idea for a gifted child. I just never did.

There's an old movie out. I forget the name of it, but I saw it when I was an undergraduate. It was terrible. I had it in my exceptional children class, and here somebody was interviewing a little gifted boy with the horn-rimmed glasses and all. And he was talking about equations and this sort of thing, which is a turn-off. You know, it was just a turn-off to everybody in the class, because these people who were watching the film were threatened by this student expounding on all these different things that they didn't have any idea about and they really didn't want to know about.

But this is what we do to these students. It's a shame, because when you get into a situation that doesn't have anything for the gifted, you have to sort of break that away, and you have to say, "This isn't what they're like."

MERROW: Let's suppose we lined up all the school children in the City of Chicago, along the Lake Shore Drive out there, would I walking along that line be able to identify the gifted children by looking at them?

NOVOTNY: What do you think? I don't think so, maybe not by looking at them. No, you'd have to observe behavior certainly.

MERROW: They wouldn't all be reading books or looking at their slide rule?

NOVOTNY: No, I don't think so. Of course, the studies have shown too that a lot of these students are physically gifted. They're just opposite of what we would think them to be. Instead of being fat, they have very well developed bodies. They're more rounded students than the ones that would just carry around a slide rule all the time too. You might see a slide rule in one pocket and a tennis racket in the other hand.

BLAIR: Sue Novotny, Consultant for Gifted and Talented Children in Yuma County, Arizona.

## KEITH GUNDERSON, POET

KEITH GUNDERSON: The first thing I can remember really dates back to when I was a very tiny little critter. I was pretty linguistic at the time, and I was in a crib, I know that, but I didn't know that at the time. And some people don't believe I can remember that far back, but I can do that. And this is about the first thing I remember.

The first thing I remember
was a lot of dark and being put wrong on my side
and my arm under me hurting and my bottle going out of my mouth
and even though I couldn't think that what was wrong was being put
wrong on my side
and my arm trapped and no bottle
she turned me and fixed my arm right
and my bottle was back in my mouth
and the two long arms came in with my mom at the end
though I didn't even note to myself
that it was my mom
or long arms
or sounds that made words
but I knew she'd come without knowing I knew
or that she was she
or that what she would do was to me.

(MUSIC)

BLAIR: That unusual free form poem is by Minnesota Poet Keith Gunderson. Among other things, he was writing about the formation of intelligence, and about one of the five major intellectual abilities -- memory. The other four abilities, according to researcher Mary Meeker, are comprehension, evaluation (or common sense), convergent production (or supplying the answer the way you were taught), and divergent production (or creativity). Dr. Meeker, and a lot of other people, believe that intelligence cannot be measured by one score (like an I.Q. score) because intelligence is three dimensional. She tests individuals for their abilities on a model called the "structure of the intellect."

DR. MARY MEEKER

DR. MARY MEEKER: The most primitive kind of handling that children must do has to do with shapes. For example, the first thing that they recognize is their bottle. Then they begin to recognize their mother's or father's footsteps and the way their arms feel when they hold them. This is figural. It's a tremendous growth from that first simple unit that the child hears or feels or sees to making an association between that with something else, like how does he begin to associate the sound of his mother's footsteps with the warm bottle that she brings? So, that the young infant is beginning to develop these five abilities, depending upon what happens to him in his home. We know that children who are completely isolated or who are starved or are severely beaten, do not learn the way other children -- their intelligence simply does not develop. And realize now when we make that statement that we have come a long long way from saying that an I.Q. score is permanent and never changes, you're born with it, and environment has nothing to do with it.

So, you can see what a long way we've come to understanding that the things the child sees and hears and feels in the crib begin to determine the development of his intelligence, because the intellectual abilities are really identified by three dimensions. In other words, there's the major ability; there's the content of which it's made and then the way in which the content is organized.

MERROW: How do they relate?

MEEKER: I think the best way to explain that is to give an example. Let's say that people listening now, if they have a ring on their finger or a bracelet, if they look at that ring or bracelet, they are comprehending it, okay? And it is a single thing, so they're comprehending a thing which is figural. It's a shape, and it's a single, so, it's a unit. So, they're comprehending a figural unit.

Now, we can take those units and we can do something with them. We can put them together in classes. Let's say there are several people sitting around, they all have rings on, and they look at them. And let's say one is gold, one is silver, one is bone, one has diamonds, one has emeralds, one has turquoise. Then, they begin to make relations. It's a single figural unit, right, but they can be related and so, we can say that we can comprehend how these figural things are related. So, we have a single unit. We have a classification of those units. They're all rings and maybe they're all related in some -- maybe they're all gold, maybe they're all the same size. So, we have relational organization of contents.

And then there are three more beyond that. Transformation is another way we handle products. If we were to take the ring, and if

we were to change it in some way, and there are ways to change it. We can cut it. We can melt it, but there are some ways that we can transform it. Now, we're getting into very creative ways of handling things in our environment. So, that's called transformational thinking.

MERROW: Is it possible that I, for example, have these five dimensions of intellect, some better developed than others? My memory's not that good, but something else might be all right.

MEEKER: What you're bringing up is really critical. Transformational thinking to think in terms of figures is quite different from thinking in terms of words. And that's the beauty of using a model for intelligence, rather than a score.

We find that people can say, "Okay, I know I'm not so good at that, but I am good in this." The traditional intelligence test might require as many as six abilities to get the one right answer. The child might have five of those abilities, but the one lacking keeps him from getting the answer right.

MERROW: And our judgment is he just doesn't have any of these abilities.

MEEKER: That's the typical conclusion, because none of the tests are based on the theory of intelligence. They're just based on this G factor that gives you a score, because scores are easy to handle.

MERROW: Well, wait a minute -- what's a G factor?

MEEKER: The G factor is the general factor of intelligence. If you follow the theoretical belief that intelligence is a general thing and, therefore, you can assess it by putting a score on it, then you're assessing intelligence like blood pressure. Your blood pressure has a certain score, right, and that's a general thing, but it doesn't tell you whether you're anemic. It doesn't tell you whether you're healthy in the composition of the elements of your blood, or whether you have a disease other than high or low blood pressure.

MERROW: But a blood pressure is a good thing to know. Your intelligence, your G factor, may not even be a useful score.

MEEKER: That's true. The G factor, unlike the blood pressure, may not be a necessary thing. However, legislation, then, is based on a program of special funding for special scores.

MERROW: Dr. Mary Meeker of the Structure of Intellect Institute in California.

This test was developed by J. P. Guilford for the U.S. Air Force to try to find out why so many recruits were washing out of pilot training when their I.Q. scores were more than adequate. Guilford attempted to identify clusters of abilities, so perhaps it's not how much intelligence you have, but what kind. Meeker, who is carrying on Guilford's work, believes that individuals can be very good at one thing -- like comprehension -- and bad at another -- like memory. By working on your memory, she says, you can bring up your general intelligence score.

BLAIR: It's time for our little test, so go get a pencil and a piece of paper.

(MUSIC)

BLAIR: Here's Dr. Meeker.

MEEKER: Here's a neat little test that almost anyone can do, and it doesn't matter what your age is. That's a beautiful thing about intelligence. It is not graded by age. It is not graded by grade, so, a real fun test of creativity.

MERROW: Everybody get a piece of paper and draw eight squares on that piece of paper.

MEEKER: Now, make something different out of each square. Make each square into something different.

BLAIR: That's all there is to it. Give it a try.

(MUSIC-- LONG PAUSE)

BLAIR: Finished? Okay, let's see how you did.

MEEKER: The first thing you want to do now is count up how many you filled in. That will give you the one score for fluency. Suppose, then, that you spent a great deal of time elaborating on one square. This would have meaning. It would mean you pay attention to detail and so you can be trusted to do that sort of thing. It may mean you're very artistic.

MERROW: You mean you didn't fail the test?

MEEKER: No, you don't fail the test. It may be that you're low in fluency, but high in originality. Then, your set change is what we did next, how many different kinds of things, because a person who will make each one something different, that kind of person would probably die a slow death in a repetitive job where he is not challenged, doesn't have to change gears all the time.

Then, we have transformation thinking, which is a very high level figural ability. And these are conceptualizers who are going to have ideas and who are going to take something, change it around completely, and come out with something new.

MERROW: And how would high transformational thinking show up on these eight squares that people just made something out of?

MEEKER: It would be if they used more than one square to make something. Suppose they put the two squares or three squares together and made them into one thing. They broke out of the set, across the lines, and they reconceptualized those squares, and solved three of them as one thing.

MERROW: What else can you tell from what they did, or from what I did?

MEEKER: Let me give you an example. We've tested hundreds and hundreds of children and young adults. Rarely, do we get the square made into an elevator with the stop and go signs. That's an original response.

MERROW: Did anybody do that?

MEEKER: Yes, we've had that happen very rarely. But, originality means rare, so, you would not expect it very often. So, I hope the audience isn't unhappy if they made a lot of houses or a lot of designs, but we're not original, because there are four ways to being creative and each way has meaning.

MERROW: Dr. Meeker, with the eight squares that we've just had people make something out of, there's another part of it, isn't there? Don't you also ask people to take one of those blocks or one of those squares and tell a story?

MEEKER: We do -- we ask this to get the comparable ability.

MERROW: What happens when you do that?

MEEKER: They might say, "I drew a picture of the sun and a house with some grass -- I like that picture -- it's pretty -- I wish I had some colors, I could color it." This would not be a divergent production or a creativity response semantically, but I could give you an example of a child who drew in one of the squares -- and this was a sixth grade boy. And in the square he drew a box of crayons, and his story was about -- he said, "I chose the box of crayons to write about. Once there was a little boy named Robin, and Robin went to the store to buy a box of crayons. This was not good, because Robin ate crayons. When he opened the box, a little purple crayon stuck its head out, and said 'hello -- my name is heliotrope -- I'm your purple crayon.' And Robin said, 'well, hello, heliotrope.' And Robin learned never to eat crayons again, and heliotrope was very happy."

MERROW: And that young person, that sixth grader, scores very highly in what you would call divergent production semantically.

MEEKER: Now, once we can find these sorts of children, then they need to have experience part of the time in their curriculum to continue to develop this kind of creative ability.

MERROW: What you're saying, using this kind of a test you can find out just what kinds of strengths and weaknesses individual children have and then those particular strengths and weaknesses can be ministered to.

MEEKER: Right, that puts education into a whole new ballgame. I think the problem has been in education is that we have asked how much, and that leads us to what we call a retardation giftedness, not talented necessarily. When we start asking what kind, then we take a step down a different road.

One cute little boy whose teacher was teaching them within the Structure of Intellect -- this was in Watts in L.A. And the child came in towards the end of the year and each day all of them got specific SOI tasks that trained their specific strengths and weaknesses. And the kids got to a point where they could identify those abilities just by the letters. And the little boy came in and he said, "Oh, I really have to have some evaluation training today, because I sure did some dumb things yesterday." So, he said, "Could I have some EFU training today?" to his teacher.

MERROW: That's terrific. Thanks very much. Dr. Mary Meeker of the SOI Institute in El Segundo, California.

(MUSIC)

MERROW: Tests, like the one you just took a small part of, do help identify abilities. No one test is right for everyone, and most educators believe in multiple sources of information: test scores, observation, and reports from peers, teachers and parents. Testing, a multi-million dollar industry, is under attack these days, and

some states -- California is one -- prohibit reliance on I.Q. scores for assigning pupils to special classes or categories. Nonetheless, the Stanford-Binet and the Weschler I.Q. tests are still widely accepted.

BLAIR: There's one obstacle to identifying gifted children that we haven't discussed, and that's cultural differences. For example, when Dr. Meeker asks a child to draw a square, suppose the child only knows the word "box" as a label for that geometric shape? He or she has lost ground already. Standardized tests do not allow for differences in language or culture. John talked about this problem with Dr. Alexinia Baldwin of the State University of New York in Albany and Dr. Charles Jordan of the Cleveland, Ohio Program for Gifted Students.

DR. ALEXINIA BALDWIN & DR. CHARLES JORDAN

MERROW: How different is it identifying gifted kids who come from disadvantaged backgrounds as opposed to identifying kids from more or less normal middle class and upper middle class backgrounds?

DR. ALEXINIA BALDWIN: We are familiar with the usual Stanford-Binet assessment and other regular assessment techniques that are used, but when you look at the scores, these scores are never the same as scores that would be for children who did not come from disadvantaged backgrounds. So, you have to go into other areas. And then you use a little of your own intuition. You look at the kids. You talk with them, you interview them, you talk to their peer groups.

MERROW: But the truth is that the disadvantaged kids simply don't score as well on the standardized tests.

BALDWIN: Oh, no, they don't score as well and, in fact, I have a study that I have just finished compiling which showed the average I.Q. score of twenty some children in a class. It was 115, which meant that if you were taking 132 as a cutoff point for these children, none of these children would have been selected, but the exciting thing about the whole results is that the first year after they had been in the class with me, their achievement scores went two and three years above the average level of 2.5. Then, we took the California Mental Maturity test scores, and we analyzed those to see if there had been any change in their I.Q. scores. And, fortunately, as I had thought, there was an increase and so, we are surmising that those children really in the original screening should have had an assumed 10 to 13 point score difference or increase than what was listed on those two I.Q. tests.

MERROW: Would that hold up as a general rule, that is, a kid from a disadvantaged background who scored 120, should we assume that his or her I.Q. would, in fact be 133?

BALDWIN: We can't say that definitely. We can only say that when you look at those scores, be sure not to take them as the gospel, but use other means. With this group of children, it was certainly true.

MERROW: The notion of taking scores as a gospel -- is that what you do in Cleveland, Dr. Jordan?

DR. CHARLES JORDAN: No, we do not. We use them as guidelines.

BALDWIN: I was just going to say that Mary Meeker, who has done quite a bit of work with the structure of the intellect, has a new test

looking at the potential areas of the dimensions of intellect with children who are from different cultures as a better way of assesing whether they have potential, because they might not have had the stimulus in various areas because of their environment, but they have the capacity. And I always like it to -- as I tell my students all the time -- it's like having a big cup or a small cup. And maybe there would be a child in the advantaged group that would have a small cup that was filled up and there would be a child in a disadvantaged group that would have a large cup which has not been filled, and he might not score as well as that person who had the small cup. Tests or judging what has been put in that cup, then naturally that child would not measure as well as the other -- who might really have the smaller cup.

JORDAN: Well, basically, in our program we look at youngsters as though they had, not a limited capacity, but we see a human being who probably needs some help in his development. We would say that the possibilities are more or less unlimited, and this is the way that we look at it. So, basically, we're not thinking in terms of because a kid lives in certain sections of the city that he's going to have so much potential and because someone else lives in another section of the city he's going to have so much potential.

MERROW: Both of you must have some ideas on what happens with gifted kids if they don't get -- if their talent is denied.

BALDWIN: Some people have been denied -- I'm thinking about people in Alabama who were denied an opportunity, but they were not cut out completely. They had enough strength to go ahead on their own and develop this ability, and they came out eventually with some very outstanding inventions -- Carver is one. The man who invented the ginny, Copler, is another.

MERROW: There you're saying, in effect, that cream rises to the top.

BALDWIN: Sometimes, but look what hard times they had trying to be recognized, and it could have been lost. It was just a happenstance that these people pursued, and these are just a few. But there are many others in the back hills that were not brought to the forefront, were not recognized.

JORDAN: Some of these people were saying, "Nobody's listening to us." It's somewhat like the play "Our Town," in which Emily came back. She said, "nobody's listening to me." And there are hundreds, and maybe thousands of people which are saying nobody's listening to me -- I wanted to write, but nobody would let me. I wanted to speak, but nobody would hear me. Nobody is listening to me. So, is anybody listening? Does anybody care? This is what it really boils down to.

BALDWIN: But you have a vast audience out there, a vast group of children who have not had any type of stimulation. They aren't the middle class family with the mother and father in type of jobs that would bring home information; so those are the groups of children who have no behaviors that are familiar with the teachers in the classroom for them to say, "Ah ha, Johnny must be very bright, because he's acting this way or he has this type of behavior."

And that was the advantage that I had -- coming from the culture myself. I could look at those kids, and even though they were just as bad as they could be -- they're disturbing this class, I said, "there's something in this child -- he has some gift that I need to do something about." Well, a person who is not familiar with the culture and not familiar with these idiosyncrasies, might say, "He needs to be in a retarded class or he needs to be in a behavioral modification situation,

so that I can get him to conform with the rest of the class. And that child will end up being an under achiever. And it was very evident with this group of kids that I worked with that the achievement test scores were way below grade level.

But you see it's not as expensive as people would like to make it out to be, because there are many ways that you can assess a child's ability. Expense is not the thing in identifying. It's what you're going to -- it's the attitude that you bring to the whole situation. If this disadvantaged child is capable, he should be brought to the attention of someone. But so many people feel that just because he comes from a different environment, he certainly can't be capable. I get all excited about it, because I just get turned off when people say expense is the reason we can't get kids in gifted programs. That shouldn't be.

MERROW: Dr. Alexinia Baldwin and Dr. Charles Jordan.

You know, we've talked to a lot of experts about gifted students, but what about the kids. Mark Poindexter visited a special class for the gifted and talented in Kansas City, Missouri.

CHILD: There's three kinds of science I'm interested in -- astronomy, archeology, and geology, and if I can't do any of those, I'd be a baseball or football player.

POINDEXTER: How's the way you go about learning here different than other classes you've been in?

CHILD: It's fun, but we do work. It's fun work.

CHILD: It's different, because we get to chew gum and eat candy, and we can whisper.

CHILD: I'd just like to go to school and learn so I can get a good job when I grow up, and it's fun.

POINDEXTER: What's a good job?

CHILD: Oh, I don't know -- maybe a business lady.

CHILD: Well, see, I write poems and stuff and I like to draw and I'd like to do that some. But I'd also like to be a doctor, like transplant brains and stuff like that.

CHILD: I'm going to be the world's greatest architect.

POINDEXTER: The vast majority of gifted children are not in any special programs. They may not even be identified as gifted. And despite all the tests that have been devised to classify people, the truth is people don't really fit very well into neat little boxes. I'm Mark Poindexter.

(MUSIC --"LITTLE BOXES ON THE HILLSIDE")

BLAIR: We hope you will find out whether your school has a program for gifted students, and write us about it. We'll read your letters on Part Five in this series. Our address: National Public Radio -- dash -- Education, Washington, D.C. 20036.

MERROW: Let's make a deal. You send us your answer, and we'll send you a set of the five transcripts, free. Our address again: National Public Radio -- dash -- Education, Washington, D.C. 20036.

BLAIR: A set of the five cassettes costs $16. Special thanks to Minnesota Poet Keith Gunderson, and reporters Mark Poindexter, KCUR, Kansas City, Missouri, and David Freudberg, WGBH, Boston.

MURROW: Next week we'll be in the classroom, talking with gifted children and their teachers. Join us.

(MUSIC)

CHILD: OPTIONS IN EDUCATION is a co-production of the Institute for Educational Leadership at the George Washington University and National Public Radio.

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BLAIR: This program is produced by Midge Hart. The Executive Producer is John Merrow. Associate Producer, Jo Ellyn Rackleff. For OPTIONS IN EDUCATION, I'm Wendy Blair.

(MUSIC)

CHILD: This is NPR -- National Public Radio.